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Update on strong and radiative decays of the $D_{s0}^*(2317)$ and $D_{s1}(2460)$ and their bottom cousins

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The isospin breaking and radiative decay widths of the positive-parity charm-strange mesons, D_{s0}^* and D_{s1}, and their predicted bottom-strange counterparts, B_{s0}^* and B_{s1}, as hadronic molecules are revisited. This is necessary, since the B_{s0}^* and B_{s1} masses used in (Cleven et al., Eur Phys J A 50:149, 2014) were too small, in conflict with the heavy quark flavour symmetry. Furthermore, not all isospin breaking contributions were considered. We here present a method to restore heavy quark flavour symmetry, correcting the masses of B∗s0 and Bs1, and include the complete isospin breaking contributions up to next-to-leading order. With this we provide updated hadronic decay widths for all of D_{s0}^*, D_{s1}, B_{s0}^* and B_{s1}. Results for the partial widths of the radiative decays of $D_{s0}^*(2317)$ and $D_{s1}(2460)$ are also renewed in light of the much more precisely measured D_+^* width. We find that $B_s\pi_0$ and $B_s\gamma$ are the preferred channels for searching for B_{s0}^* and B_{s1}, respectively.

Category

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